CHAPTER 3

OBJECTIVE AND PLAN OF WORK

SECTION 3.1: SELECTION OF PROJECT

- Drug in solid dispersion systems may exist as an amorphous form with polymeric carriers. This system improved the solubility and dissolution of drugs because of its particle size reduction and surface area enhancement.

- Hydrophilic carrier possess tendency to increase wettability, decreases aggregation agglomeration and reduce crystallinity resulting in changing the hydrophobic drug to hydrophilic form.

- A better therapeutic action is achieved for short half life drug.

- Increasing patient compliance by rapid onset of action

SECTION 3.2: OBJECTIVES

- The objective of this work is to obtain physically and chemically stable amorphous solid dispersion of a poorly water soluble non steroidal anti-inflammatory drug in presence of different hydrophilic polymer as a carrier by simple, quick, inexpensive and reproducible manner.

- To determine the effect of change in polymer and polymer composition and drug-polymer ratio on solubility of drugs.

- To evaluate, compare and select suitable carrier systems for delivery of drugs.

- To enhance solubility and bioavailability of practically insoluble drugs.

- Finally to characterize prepared solid dispersion for their morphology, structure and in vitro release behavior.

SECTION 3.3: PLAN OF WORK

1. Literature Survey
2. Preformulation Studies
   1. Drug Identification test:
      - Melting Point
      - Solubility
   2. Drug excipient compatibility Studies
CHAPTER 3

OBJECTIVE AND PLAN OF WORK

3. UV Spectrometric Studies:
   • Assay and Determination of wave length
   • Preparation of calibration curve

3. Development of Solid Dispersion

4. Characterization of Solid Dispersion
   i. Phase Solubility studies
   ii. Solid State Studies
      1) Fourier Transform Infra red (FT-IR)
      2) Differential Scanning Calorimetry (DSC)
      3) X-ray Diffraction (XRD)
      4) Scanning Electron Microscopy (SEM)
   iii. Drug Entrapment Studies
   iv. Percentage Yield efficiency
   v. Statistical Analysis
   vi. Determination of In-vitro Drug release

5. Evaluation of a release Kinetic of Solid Dispersion

6. In vivo Analgesic & Anti-inflammatory activity